

## Easy and Fun Math Night Projects

### SUMMARY

**Math nights** and **math festivals** are a fun multi-teacher/ all-school activity. Students and teachers showcase math projects or activities of their choice. Set up stations for each math activity facilitating collaboration in discovering solutions to exciting real world math challenges.

### AUDIENCE

All educators & students in grades K – 12, & parents, math

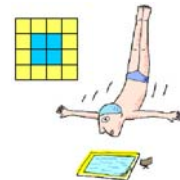


### WHY HAVE A MATH NIGHT?

The goal of a family math night is to strengthen the mathematical abilities of students through family interaction. Family night encourages parents and students to appreciate the fun and excitement of mathematics. Each hands-on activity promotes mathematical reasoning and communication, and makes learning mathematics a meaningful and creative process.

### SELECT PROJECTS

1. Pick math topics that are interesting **and relevant** to the students.
2. **Define the challenge**, not the solution.

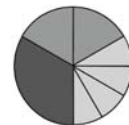


Sample challenges

- *Are You an MVP?* (various sport-related math activities)
- *What's My Tessellation?* (creating tessellations via rotations, glides, transformations)
- *Can You Build a Thrilling Roller Coaster?* (using certain materials, find the fastest speed)
- *Puzzles That Bend Your Mind!* (Sudoku, mazes, situation problems, etc.)
- *Find My Pattern Puzzles* (**Dive into Square Pools**, plus other iteration functions)
- *What's My Area?* (discover the area of different shapes)
- *Measure Up!* (compare measures of different items)
- *Estimate How Many I Have!* (estimation, probability)
- *How Many Types of Sandwiches Can You Make?* (combinations, permutations)
- *Can You Make a Whole Fraction Circle Without Busting?* (**Frack Jack**)

### PREPARE FOR THE MATH NIGHT

1. Prepare ahead a date, a location, and a time for the event.
2. Select a number of stations to showcase the math challenges.
3. Plan and print a schedule of the challenges and the locations of each station.
4. Decide on how to display and identify each station. (common theme?)
5. Decide on participation/ award incentives.
6. Identify, recruit, and schedule volunteer helpers.
7. Advertise the event to your audience.
8. Invite visitors. (parents, principal(s), staff, other teachers, etc.)
9. Set up a sign-in registration system.
10. Prepare a budget and gather/prepare all supplies needed.
11. Send reminder to parents and students.



## INTRODUCE THE MATH NIGHT

1. **Call it a *challenge*, not a *problem*.** Some students feel problems are tedious and have only one solution; challenges are exciting and can be addressed in many ways.
2. **Get volunteers to help design & operate each station.**
3. **Include practical constraints** so that students stay safe and work within realistic boundaries. Advertise appropriate grade level(s) for each activity.
4. **Less is more** – do not show examples or give hints about what the students can do. Urge them to think for themselves and try new ideas.

## FACILITATE THE MATH NIGHT

1. **Get involved in brainstorming and demonstrating.** Teachers and volunteers monitor the event, encouraging parent and student participation.
2. **Select a person in charge** of award incentives (certificates of participation, etc.)
3. **Encourage collaboration and teamwork.** Once the students have tested an idea or two, provide access to other resources that might answer their questions or stimulate their thinking.
4. **Provide time checks** so the students do not get bogged down.
5. After event, **return room to normal.**
6. **Send thank you notes** to volunteers.
7. Evaluate the event.



## MATH STATIONS

At each station it is important for staffing volunteers to give the students a chance to explain and show their work. Provide a “test zone” where final products can be *demonstrated*. Reward creativity and resourcefulness. Celebrate really interesting solutions that “almost worked.”

## REFLECTION

1. Ask the students that participated what they liked about family math night, what they would change, and why.
2. Ask them to reflect on the **skills they practiced**. How can they take those skills and use them not only in math class but also in their everyday lives?

## ASSESSMENT

1. After the math night– what did you hear in their reflections? Are they **seeing themselves as team players and creative problem-solvers**? How are they **relating** math to their own lives?

## RELATED RESOURCES

RAFT hands-on activities that can easily be used to support math night challenges:

- Area Antics** – [http://www.raft.net/ideas/Area Antics.pdf](http://www.raft.net/ideas/Area%20Antics.pdf)  
**Dive Into Square Pools** – [http://www.raft.net/ideas/Dive into Square Pools.pdf](http://www.raft.net/ideas/Dive%20into%20Square%20Pools.pdf)  
**Estimating Jar** – [http://www.raft.net/ideas/Estimating Jar.pdf](http://www.raft.net/ideas/Estimating%20Jar.pdf)  
**Frack Jack** – [http://www.raft.net/ideas/Frack Jack.pdf](http://www.raft.net/ideas/Frack%20Jack.pdf)  
**Measure Up** – [http://www.raft.net/ideas/Measure Up.pdf](http://www.raft.net/ideas/Measure%20Up.pdf)  
**Roller Coaster Math** – [http://www.raft.net/ideas/Roller Coaster Math.pdf](http://www.raft.net/ideas/Roller%20Coaster%20Math.pdf)  
**Tessellating Lizard** – [http://www.raft.net/ideas/Tessellating Lizard.pdf](http://www.raft.net/ideas/Tessellating%20Lizard.pdf)

